

CLAIMS

We claim:

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Sub A1

1. A method for managing power consumed by a computer system, comprising directing access intended for a device coupled to said computer system to an alternate memory space in said computer system when said device is powered off during power management state of said computer system.

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2. The method of claim 1, further comprising performing a process that does not require external activities at said computer system to run but accesses said device.

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3. The method of claim 1, wherein said directing access comprises mapping data intended for said device to said memory space.

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4. The method of claim 5, wherein said directing access comprises performing virtual memory mapping.

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5. The method of claim 1, wherein said device comprises a framebuffer.

6. The method of claim 1, wherein said memory space is a portion of a main memory for said computer system.

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7. A method for managing power consumption in a computer system, comprising:

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Sub A1
placing said computer system in power management mode;
requesting removing power from a device coupled to said computer
system;
allocating a memory in said computer system;
removing power from said device; and
directing access intended for said device to said memory while power is
removed from said device.

10 8. The method of claim 7, further comprising executing a process that
includes instructions for accesses to said device, said accesses being directed to said
memory.

9. The method of claim 8, further comprising reading data from said
memory to allow said process to continue running

10. The method of claim 8, further comprising writing data generated from
said process to said memory.

11. The method of claim 7, further comprising detecting an idle state of
said computer system, and wherein said requesting removing power is responsive to
said detection of said idle state.

25 12. The method of claim 7, further comprising determining whether there
has been external activities at said computer system for a predetermined time.

13. The method of claim 12, wherein said external activities comprise
activities at a keyboard or a mouse coupled to said computer system.

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- Sub A)*
14. The method of claim 7, further comprising:
restoring power to said device;
restoring device state to said device; and
updating said device.

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15. The method of claim 14, further comprising releasing said memory and
restoring a first mapping such that data is mapped to said device.

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16. The method of claim 14, wherein said updating comprises redrawing
windows on a display device.

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17. A method for managing power consumption in a computer system in a
network system having a first computer coupled to a second computer, said second
computer executing a process that accesses a device coupled to said first computer,
comprising:

placing said first computer in a power management state;
allocating range of virtual memory addresses;
removing power from said device; and
directing access from said second computer that is intended for said
device to said memory addresses.

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18. The method of claim 17, wherein said process comprises a process that
accesses said device, said process continues running at said first computer.

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19. The method of claim 17, wherein said range of virtual memory
addresses correspond to a portion of memory in said first computer.

20. A method for power managing a framebuffer coupled to a computer system, comprising directing access requests intended for said framebuffer to a memory in a computer while said computer system in power management mode and said framebuffer is powered off.

21. The method of claim 20, wherein said framebuffer and said memory each comprises a plurality of addressable locations, and wherein there is a unique address location in said memory corresponding to each address location in said framebuffer.

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22. The method of claim 20, wherein said framebuffer and said memory each contains a plurality of addressable locations, and wherein there are fewer addressable locations in said memory than addressable locations in said framebuffer.

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23. The method of claim 22, wherein accesses to all addressable locations in said framebuffer are directed to a single addressable location in said memory.

24. A method for managing power consumed by a computer system having a central processing unit, a power management device, and a peripheral device, wherein said power management device controls power to said peripheral device, the method comprising implementing an executable instruction set for directing access intended for said peripheral device to a range of memory addresses when said computer system is in a power management mode and said peripheral device is powered off.

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25. A computer system with power management capabilities, comprising a power management circuit capable of directing access intended for a device coupled

to said computer system to a memory in said computer system when said computer system is in a power management mode and said device is powered off.

26. The computer system of claim 25, wherein said power management circuit comprises:

- Sub A*
- a server for handling communication between a process and a device;
 - a device driver for accessing said device; and
 - a power manager for setting power level of said device.

10 27. A computer system with power management capability, comprising:
a display device;
a framebuffer associated with said display device; and
a virtual framebuffer, wherein access to said framebuffer is directed to
said virtual framebuffer when said computer system is in power management
mode and said framebuffer is powered off.

28. The computer system of claim 27, wherein said virtual framebuffer contains fewer addressable locations than said framebuffer.

29. A computer readable medium for implementing an instruction set for directing access intended for a device to a memory space during power management mode of a computer system coupled to said device and when said device is powered off.